

AMENDMENTS TO THE CLAIMS

Applicants submit below a complete listing of the current claims, including marked-up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of the Claims

1. (Currently amended) A method for transmitting digital messages~~[[,]]~~ on execution of an instruction sequence by a microprocessor, through output terminals of a monitoring circuit integrated on the microprocessor, at least one of said digital messages being representative of characteristic data stored by the monitoring circuit on detection of a jump in the execution of an instruction sequence from an initial instruction to a destination instruction different from an instruction following the initial instruction in the instruction sequence, the method comprising the steps of:

determining whether the jump is associated with a jump instruction of the instruction sequence for which data representative of a destination instruction address of the jump is explicitly indicated in the instruction;

if yes, assigning a first value to a first set of bits of ~~the~~ at least one digital message to provide ~~the at least one digital message comprising~~ an explicit jump message, and if not, assigning a second value to the first set of bits to provide ~~the at least one digital message comprising~~ an implicit jump message;

~~[[if]]~~ when the first set of bits is at the second value, providing an additional field in the implicit jump message, the additional field comprising a second set of bits ~~of the at least one digital message comprising the implicit jump message,~~ and assigning to the second set of bits a third value identifying the jump as an implicit jump from among several types of implicit jumps; and transmitting the at least one digital message.

2. (Previously Presented) The method of claim 1, further comprising the step of assigning to a third set of bits of the at least one digital message a value corresponding to a number of instructions executed by the microprocessor since a last executed instruction of the instruction sequence for which a digital message associated with a jump was transmitted.

3. (Previously Presented) The method of claim 1, further comprising the step of, if the first set of bits is at the second value, assigning to a fourth set of bits of the implicit jump message a value representative of the address of the destination instruction.

4. (Previously Presented) The method of claim 1, in which a jump type corresponds to a jump resulting from a jump instruction of the instruction sequence containing a reference of a register in which are stored data representative of the destination instruction address.

5. (Previously Presented) The method of claim 1, in which a jump type corresponds to a jump forced by the microprocessor, the destination instruction corresponding to an instruction comprising a series of specific instructions which are different from instructions of the instruction sequence.

6. (Previously Presented) The method of claim 1, in which a jump type corresponds to a jump forced by the microprocessor, the destination instruction being an instruction of the instruction sequence.

7. (Currently amended) A device for transmitting digital messages between a monitoring circuit integrated on a microprocessor and an analysis tool via output terminals, comprising:

means ~~[[of]]~~ for detection of a jump on execution of an instruction sequence by the microprocessor;

means for storing data characteristic of the detected jump;

means for ~~determining~~ generating a digital message based on the stored characteristic data, the digital message comprising a first set of bits set to a first value if the jump is associated with a

jump instruction of the instruction sequence for which data representative of a destination instruction address of the jump are explicitly indicated in the instruction, wherein the digital message ~~comprises~~ is an explicit jump message, and the first set of bits set to a second value in the opposite case, wherein the digital message ~~comprises~~ is an implicit jump message; and

means for transmitting the ~~determined~~ generated digital message;

wherein, when the first set of bits is set to the second value, the ~~determination~~ generation means ~~is capable of providing~~ provides an additional field in the implicit jump message, ~~the~~ additional field comprising a second set of bits, with the second set of bits set to a third value identifying ~~[[the]]~~ an implicit jump from among several implicit jump types.

8. (Currently amended) A method for transmitting digital messages on execution of an instruction sequence by a microprocessor, the method comprising:

detecting a jump in the execution of the instruction sequence from an initial instruction to a jump destination instruction, wherein the jump destination instruction is different from an instruction following the initial instruction in the instruction sequence;

generating at least one digital message upon the detection of the jump, wherein

if the jump is implicit, generating the at least one digital message as an implicit jump message and providing an additional field in ~~at least one digital message to provide the at least one digital message comprising an~~ the implicit jump message ~~transmitted on the execution of the instruction sequence by the microprocessor, wherein the additional field includes a value identifying a type of the implicit jump~~ [[;]], and

if the jump is not implicit, ~~providing~~ generating the at least one digital message ~~comprising~~ as an explicit jump message; and

transmitting the at least one digital message.

9. (Currently amended) The method of claim 8 further comprising:

determining whether the jump is associated with a jump instruction of the instruction sequence explicitly indicating an address of the jump destination instruction;

if it is determined that the jump instruction explicitly indicates the address of the jump destination instruction, assigning a first value to a first set of bits of ~~the at least one digital message transmitted to provide the at least one digital message comprising~~ the explicit jump message; and

if it is determined that the jump instruction does not explicitly indicate the address of the jump destination instruction:

assigning a second value to the first set of bits to provide ~~the at least one digital message comprising~~ the implicit jump message; and

assigning to the additional field comprising a second set of bits a third value identifying ~~[[the]]~~ a type of the implicit jump.

10. (Previously Presented) The method of claim 8, wherein the at least one digital message is transmitted through output terminals of a monitoring circuit integrated on the microprocessor.

11. (Currently amended) A device for transmitting digital messages to monitor operation of a microprocessor, the device comprising:

a monitoring circuit integrated on a microprocessor for~~[[:]]~~

detecting, on execution of an instruction sequence by the microprocessor, a jump from an initial instruction to a jump destination instruction, wherein the jump destination instruction is different from an instruction following the initial instruction in the instruction sequence;

if the jump is implicit, providing an additional field in at least one digital message to provide the at least one digital message ~~comprising~~ as an implicit jump message transmitted on the execution of the instruction sequence by the microprocessor, wherein the additional field includes a value identifying a type of the implicit jump; and

if the jump is not implicit, providing the at least one digital message ~~comprising~~ as an explicit jump message; ~~and~~

an analysis tool to reconstitute the instruction sequence based on the at least one digital message; and

at least one monitoring terminal to provide the at least one digital message from the monitoring circuit to the analysis tool.